

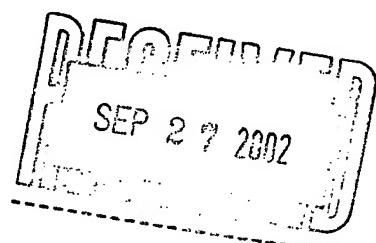
SEP 6 3 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

2881  
9-30-02

Applicant: Abdurrahman Sezginer et al. PATENT APPLICATION  
Serial No.: 10/074,561 Group Art Unit: 2881  
Filed: February 12, 2002 Examiner:  
For: OVERLAY ALIGNMENT METROLOGY  
USING DIFFRACTION GRATINGS

Information Disclosure Statement



Hon. Assistant Commissioner  
for Patents  
Washington, D.C. 20231

Sir:

The following information is submitted in  
compliance with Applicants' duty of disclosure under 37  
CFR § 1.56. A copy of each reference is enclosed.

<u>U.S. Patents</u>		
<u>Pat. No.</u>	<u>Patentee</u>	<u>Grant Date</u>
4,103,998	Nakazawa et al.	08/01/78
4,172,664	Charsky et al.	10/30/79
4,200,395	Smith et al.	04/29/80
4,311,389	Fay et al.	01/19/82
4,332,473	Ono	06/01/82
4,703,434	Brunner	10/27/87
4,757,207	Chappelow et al.	07/12/88
5,100,237	Wittekoek et al.	03/31/92
5,343,292	Brueck et al.	08/30/94
5,608,526	Piwonka-Corle et al.	03/04/97
5,721,607	Ota	02/24/98
5,808,742	Everett et al.	09/15/98

RECEIVED  
SEP - 5 2002  
TC 2800 MAIL ROOM

5,867,276	McNeil et al.	02/02/99
5,889,593	Bareket	03/30/99
5,963,329	Conrad et al.	10/05/99
6,023,338	Bareket	02/08/00
6,079,256	Bareket	07/27/00
6,088,103	Everett et al.	07/11/00
6,100,985	Scheiner et al.	08/08/00
6,150,231	Muller et al.	11/21/00

REF ID: A6727  
SEP 27 2002

Foreign Patent Documents

<u>Publ. No.</u>	<u>Country</u>	<u>Publ. Date</u>
WO 99/45340	PCT	Sept. 10, 1999

Other References

N.T. Sullivan et al., "Semiconductor Pattern Overlay", Handbook of Critical Dimension Metrology and Process Control, Proceedings of conf. 28-29 Sept. 1993, Monterey, CA, K.M. Monahan, SPIE Optical Engineering Press, Vol. CR52, pp. 160-188.

Printout, Nikon KrF Step-and-Repeat Scanning System NSR-S205C, July 2000.

A. Starikov et al., "Accuracy of Overlay Measurements: Tool and mark Asymmetry Effects", *Optical Engineering*, June 1992, Vol. 31, No. 6, pp. 1298-1310.

J. Opsal et al., "Broadband Spectral Operation of a Rotating-Compensator Ellipsometer", *Thin Solid Films*, 1998, Vol. 313-314, pp. 58-61.

X. Niu et al., "Specular Spectroscopic Scatterometry in DUV Lithography", *SPIE*, March 1999, Vol. 3677, pp. 159-168.

R.M. Silver et al., "Overlay Metrology: Recent Advances and Future Solutions", *Future Fab International*, Issue 11, London, July 2001, 17 pages.

IBM Technical Disclosure Bulletin,  
90A 60854/GE8880210, pp. 170-174.

**CERTIFICATE OF MAILING**

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Asst. Commissioner for Patents, Washington, D.C. 20231

Signed: Sally Azevedo  
Typed Name: Sally Azevedo  
Date: August 28, 2002

Date: August 28, 2002

Respectfully submitted,

Thomas Schenck

Thomas Schneck

Reg. No. 24,518

P.O. Box 2-E

San Jose, CA 95109-0005

(408) 297-9733

FORM PTO-1449	SEP 03 2002 PATENT & TRADEMARK OFFICE	Atty. Docket No. SEN-019	Serial No. 10/074,561
LIST OF PRIOR ART CITED BY APPLICANT		Applicant: Abdurrahman Sezginer et al.	
		Filing Date: February 12, 2002	Group: 2881

## U.S. PATENT DOCUMENTS

Examiner Initial*	Document Number	Grant Date	Name	Class	Sub Class	Filing Date
AA	4,103,998	08/01/78	Nakazawa et al.	356	152	
AB	4,172,664	10/30/79	Charsky et al.	356	356	
AC	4,200,395	04/29/80	Smith et al.	356	356	
AD	4,311,389	01/19/82	Fay et al.	356	354	
AE	4,332,473	06/01/82	Ono	356	356	
AF	4,703,434	10/27/87	Brunner	364	488	
AG	4,757,207	07/12/88	Chappelow et al.	250	491.1	
AH	5,100,237	03/31/92	Wittekoek et al.	356	401	
AI	5,343,292	08/30/94	Brueck et al.	356	363	
AJ	5,608,526	03/04/97	Piwonka-Corle et al.	356	369	

## FOREIGN PATENT DOCUMENTS

Examiner Initial*	Publ. Number	Publ. Date	Country	Class	Sub Class	Translation Yes No
AK	WO99/45340	09/10/99	PCT			X

## OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

AL	N.T. Sullivan et al., "Semiconductor Pattern Overlay", Handbook of Critical Dimension Metrology and Process Control, Proceedings of Conf. 28-29 Sept. 1993, Monterey, CA, K.M. Monahan, SPIE Optical Engineering Press, Vol. CR52, pp. 160-188.
AM	Printout, Nikon KrF Step-and-Repeat Scanning System NSR-S205C, July 2000.
AN	A. Starikov et al., "Accuracy of Overlay Measurements: Tool and mark Asymmetry Effects", Optical Engineering, June 1992, Vol. 31, No. 6, pp. 1298-1310.
AO	J. Opsal et al., "Broadband Spectral Operation of a Rotating-Compensator Ellipsometer", Thin Solid Films, 1998, Vol. 313-314, pp. 58-61.

EXAMINER:

DATE CONSIDERED:

\*Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449		Atty. Docket No. SEN-019	Serial No. 10/934,561
LIST OF PRIOR ART CITED BY APPLICANT		Applicant: Abdurrahman Sezginer et al.	
		Filing Date: February 12, 2002	Group: 27 2881

## U.S. PATENT DOCUMENTS

Examiner Initial*	Document Number	Grant Date	Name	Class	Sub Class	Filing Date
BA	5,721,607	02/24/98	Ota	355	53	
BB	5,808,742	09/15/98	Everett et al.	356	363	
BC	5,867,276	02/02/99	McNeil et al.	356	445	
BD	5,889,593	03/30/99	Bareket	356	445	
BE	5,963,329	10/05/99	Conrad et al.	356	372	
BF	6,023,338	02/08/00	Bareket	356	401	
BG	6,079,256	06/27/00	Bareket	73	105	
BH	6,088,103	07/11/00	Everett et al.	356	355	
BI	6,100,985	08/08/00	Scheiner et al.	356	381	
BJ	6,150,231	11/21/00	Muller et al.	438	401	

## FOREIGN PATENT DOCUMENTS

Examiner Initial*	Document Number	Grant Date	Country	Class	Sub Class	Translation Yes No
BK						

## OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

BL	X. Niu et al., "Specular Spectroscopic Scatterometry in DUV Lithography", SPIE, March 1999, Vol. 3677, pp. 159-168. ,
BM	R.M. Silver et al., "Overlay Metrology: Recent Advances and Future Solutions", Future Fab International, Issue 11, London, July 2001, 17 pages. .
BN	IBM Technical Disclosure Bulletin, March 1990, 90A 60854/GE8880210, pp. 170-174. .
BO	

EXAMINER:

DATE CONSIDERED:

\*Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.